

Seismic Assessment of The Architectural Heritage in the Fatih District of İstanbul



Polat Gülkan¹, Zeynep Ahunbay², Z. Celep, A. Yakut¹, K. Güler², D. Mazlum², J. Kubin³, D. Kubin³, M. A. Sozen⁴, A. Irfanoglu⁴ and E. Eroglu³

¹Dept. of Civil Engineering, Middle East Technical University, Ankara, İstanbul Technical University, İstanbul, Turkey
Prota Engineering, Consultancy, Limited Co., Ankara, Turkey
Dept. of Civil Engineering, Purdue University, USA
¹pgulkan@metu.edu.tr

ABSTRACT

Istanbul, a 2500-year old city, is under threat of a devastating earthquake. Reflecting past experience a very high probability of occurrence has been postulated for an M7 or larger earthquake during the next quarter century. The Metropolitan Municipality of Istanbul has committed itself to an ambitious program that targets urban rehabilitation part of which is seismic loss mitigation. The building stock includes many irreplaceable historic buildings of different ages. The city's long history is reflected in the architectural heritage of its urban texture. While the current size and population of the conurbation have spread over a large area, the historic buildings are situated mainly in the area known as the "Historic Peninsula." Here they are confined to two administrative districts (Fatih and Eminönü) that are bound by the estuary Haliç (Golden Horn) to the north, the Strait of Istanbul to the east, Sea of Marmara to the south, and the ancient land walls to the west. The administrative district Fatih alone boasts some 5,000 registered historic buildings under protection. This paper describes the procedure for measuring, recording and assessing the seismic vulnerability of historic masonry buildings in Fatih. A sample group comprising 223 buildings was surveyed as part of field and office work that lasted one-and-one-half years. Of these, 20 will be subjected to further stress analysis and detailed assessment.

Key Words: Istanbul, Fatih District, Survey, Historic Buildings, Seismic Vulnerability

Preserving the Earthen Architecture, Building the New with Earth: Challenges and Hopes



Seyed Mohammad Hossein Ayatollahi¹, Fateme Malekzadeh Bafghi², Arman Sedighian³, Mehdi Ghasemi⁴, Amir Saeed Pakseresht⁵, Homa Salimi Salimi⁶, Najmeh Naderi⁷, Kazem Tabatabaie⁸
Yazd University School of Art and Architecture
Imam St Sahlebne Ali Alley- Yazd Iran
¹hayatollahi@yazd.ac.ir, ²fmlk62@yahoo.com,

ABSTRACT

City of Yazd with a history of many thousand years have hosted the history of the people of Iran living in the desert climate and fairly pure cultural development through the ages. The historical city has been well kept and the social life is active. About a year ago the historical city of Yazd was registered in the UNESCO world heritage list, which it was one the most proudful event for Yazd and Iran.

This paper is about the value change of the people toward the earthen architecture and the challenges that the new earthen architecture is not being accepted as a way of new construction from the society value systems.

Many planning and practical activities have happened by the authorities, university academics, professionals and the students to provide the documents and conditions for the UNESCO registration, but the main objective is to follow all the rules and the requirements set by the world authorities. Building new earthen architecture is the most important challenge for Yazd to prove that this material is still the way of sustainable construction.

Yazd university school of art and architecture have cooperated with Yazd cultural heritage organization in many ways to preserve the historical city and educate the people to understand the values of the earthen architecture. The paper will explain some of the restoration and preservation activities. It will also explain the results of the new research- design and construction of a "Green Guest Suite" Being built with earthen material in Yazd University main campus.

Keywords: Earthen architecture, Historical city, Value system, Society

CV: ¹Seyed Mohammad Hossein Ayatollahi
Yazd University School of Art and Architecture,
2013- Dean of the Faculty of Arts and Architecture
hayatollahi@yazd.ac.ir

Göbeklitepe Visitor Center



Aydan VOLKAN, Erhan YILDIZ

Kreatif Architects
İstanbul
avolkan@kreatifmimarlik.com
eyildiz@kreatifmimarlik.com

ABSTRACT

Göbeklitepe archaeological site is located 15 km away from Şanlıurfa city center. It is understood that the history of Göbeklitepe dates back to 12.000 years. A group of 20 buildings in circular form, formed by arranging stone columns side by side in "T" form, were discovered. It was understood that the building groups were built for worshipping. So, its getting the title of being the first known temple of the world is not surprising. Today six of these temples have come to light and can be easily visited by people.

In this study, we will try to summarize the design story of the Göbeklitepe Visitor and Exhibition Center, which we are entitled to be an architect on the basis of the architectural design competition. You will be witnessing how the figurative design story was constructed and how the adobe (earth wall or rammed earth) construction system was incorporated into this fiction.

Key Words: Göbeklitepe, visitor center, earth wall, rammed earth, adobe

Recommendations for Çanakkale-Ayvacık Post-Earthquake Housing Needs and Solutions



Seyhan Yardımlı¹, Bilge Işık², Özlem Balık³

¹Istanbul Aydın University,

²Hasan Kalyoncu University-Gaziantep,

seyhanyardimli@aydin.edu.tr, isik.bilge@gmail.com

ozlembalik@gmail.com

ABSTRACT

A number of housing units were rendered uninhabitable when an earthquake struck Western Turkey, centered in the Ayvacık provincial district of Çanakkale province in February, 2017. The local inhabitants live in shipping containers. The production of emergency housing is urgently needed in order for these people to regain healthy living conditions. The objective of this study is to examine the causes for structures that were damaged in the villages and to recommend housing production that is earthquake-safe and appropriate for the region's structure makup. The region's traditional structures are made of stone and adobe material. Adobe material is recommended for new buildings. Contemporary adobe building technology's earthquake safety as well as contemporary production technique has been summarized in the declaration. The construction period with the traditional 'adobe' technique blended with straw lasts the entire summer season. While constructing 3-5 m³ / day can be carried out with a labor crew using the 'Sledgehammer' technique is possible, the construction time can be brought up to speed in an hour by producing walls with a tunnel mold by using a 'Shotcrete' machine, which has an output of 40 m³ rather than 5m³ per hour. New adobe construction technologies for solving emergency housing needs in the Ayvacık area shall be summarized in the study.

Key Words: Çanakkale Ayvacık Earthquake, Adobe Production Technique, Adobe Material Additives, Rapid Adobe Construction Production

CV: ¹**Asst. Prof. Dr. Seyhan Yardımlı**, Asst. Prof. Dr. Seyhan YARDIMLI, İstanbul Aydın University, Faculty of Architecture and Design Department. She earned her Master's Degree in Department of Structural Engineering and Doctoral Degree in Department of Building Materials. She has 2 Post – Graduate Students, 25 publications and she married with 1 child.

CV: ³Özlem Balık, She graduated from department of civil engineering in Karadeniz Technical University. She completed the master's degree in the Conservation of Cultural and Natural Properties in Kadir Has University Institute of Science. Now, She have been working in İstanbul Fatih Municipality for restoration of historic structures. She have been working the restoration works of Byzantine and Ottoman Structures in historical peninsula. She have conducted the restoration process of civil architectural structures, hydraulic structures, cisterns, , madrassah, primary schools and religious buildings. Now, She is controller of study of application of roof restoration of the Grand Bazaar. She worked as teaching assistant in İstanbul Aydın University Architectural Restoration Department. She is continue my Ph.D. in Architectural Department of Institute of Science of Aydın University.

Using a Nylon Rope Mesh as Seismic Reinforcement for Earthen Constructions



Marcial Blondet¹, Nicola Tarque², Julio Vargas³,

Pontifical Catholic University of Peru (PUCP)

¹ mblondet@pucp.edu.pe

ABSTRACT

This article presents preliminary results of an ongoing research project whose objective is to develop a structural reinforcement system for earthen constructions located in seismic areas. The proposed reinforcement consists of a mesh made of nylon ropes, which envelopes completely all the earthen walls and maintains structural integrity even after the walls have been significantly damaged by earthquake forces. A design methodology was developed to specify the required reinforcement for one-story earthen constructions and was validated via shaking table testing of several large-scale one-story adobe housing models. Recently, four two-story half-scale models were also tested on the shaking table: two without reinforcement and two with rope mesh reinforcement. The test results obtained and the needs for further research are discussed in the article.

It is thought that the use of a rope mesh as seismic reinforcement for earthen constructions has the potential to protect the lives of millions of families which are currently are at risk and the integrity of invaluable earthen historical monuments.

Key Words: Seismic reinforcement, Earthen constructions, Shaking table tests

CV: ¹**Marcial Blondet**, Nicola Tarque and Julio Vargas Pontifical Catholic University of Peru (PUCP), mblondet@pucp.edu.pe

Evolution of the Graduate Research Done in Turkey on Adobe



Murat DAL

Munzur University 62000, Tunceli, Turkey.

Tel:0 428 213 17 94

muratdal @munzur.edu.tr, teknikmurathoca@gmail.com

ABSTRACT

In this study, graduate and doctoral studies on the subject of adobe in Turkey were discussed. As a working method, 'adobe' was searched as a keyword for the title of the thesis in the thesis archive of the thesis screening page of Turkish Higher Education website. As a result of the study, it was seen that 21 graduate studies have been done by different disciplines. 11 of those are in architectural areas, 3 are in civil engineering field, 3 are in archeology field, 1 is in arctometry field, 1 is in mining engineering field, 1 is in fine arts field and 1 is in technical education field in master's level. It was noticed that no work in doctoral level had been done. In recent years there has been an intense concentration of studies at the master's level in the fields of architecture and civil engineering.

It can be said that the work done by different disciplines on adobe is not enough. In order to increase the work done on this area, project support, award-winning competitions, panels, symposiums, presentations, etc. can be organized to withdraw support and attention from different disciplines. In the departments of Architecture and Civil Engineering, undergraduate level courses "Intoductory Adobe Course" can be opened as an elective course. In architectural projects, the use of adobe in terms of color, pattern, naturalness, easy availability, easy accessibility, easy producibility, healthy and natural building material can be preferred. Thus, adobe building material can be used in modern architecture as well as traditional architecture in our country. In order to protect, repair and use of adobe structures, especially in rural architecture, necessary researches should be done at the country level.

Key Words: Turkey, Adobe structures, Graduate studies, Adobe materials

CV: Dr. Murat DAL

Makes research and teaches at the University of Munzur. Received his degrees at the Department of Architecture of Natural and Applied Sciences, Trakya University. Has 40 article and three book in the field of building material and restoration.

Damages Seen in the Adobe Buildings in Pertek



Murat DAL

Munzur University 62000, Tunceli, Turkey.

Tel:0 428 213 17 9

muratdal@munzur.edu.tr, teknikmurathoca@gmail.com

ABSTRACT

Pertek is the most crowded district in terms of population of Tunceli. Pertek, with a population of 25,000 in 1872, a decline in 2016, it fell to 11034 people with a large decline. It is a settlement located on the coast of Keban Dam. There are few mudbrick structures in other districts of Tunceli. Pertek is the district that is the most intense in terms of mudbrick structures. It has been determined that mudbrick structures intensify in Derebaşı and Camiikebir Neighborhoods, the oldest neighborhoods of Pertek district center. As the other sites were newly constructed, it was determined that all structures were made of reinforced concrete structures. Because of this reason, Derebaşı and Camiikebir Neighborhoods were chosen as the study area.

Mudbrick structures; Natural, ecologically, easily producible, sustainable and environmentally friendly due to its positive features, it is beneficial to protect its place in modern architecture again with various supports and introductions and even move it forward. Mudbrick structures are the most healthy structures for humans. The most important features are that it is hot in winter and cool in summer.

Structural damage was assessed by examining the mudbrick structures commonly found in the Derebaşı and Camiikebir in the Pertek Central District of Tunceli Province. It has been determined that there are approximately 50 buildings of mudbrick in the Derebaşı and Camiikebir Neighborhoods. Each site was examined 10 buildings and necessary evaluations were made. It was also found that the mudbrick structure problems in both localities are similar. At the end of this work, especially abandoned mudbrick structures, unconscious use, improper construction, lack of maintenance, water-humidity etc. damages due to reasons were common.

Key Words : Pertek, Mudbrick structures, Structural damages, Mudbrick material

CV: Dr. Murat DAL

Makes research and teaches at the University of Munzur. Received his degrees at the Department of Architecture of Natural and Applied Sciences, Trakya University. Has 40 article and three book in the field of building material and restoration.

Review of the Appraisal of the Study of Crack Propagation of Alker



Kenechi Kurtis Onochie¹,
Ayse Pekrioglu Balkis²
Department of Civil Engineering, Cyprus
International University, 99258 Lefkoşa, via
Mersin 10, Turkey, North Cyprus
¹konochie@ciu.edu.tr; ²apekrioglu@ciu.edu.tr

ABSTRACT

The study reviews the appraisal of the study of crack propagation of Alker (earthen construction stabilized with gypsum and lime) further improved by the addition of polypropylene fiber. The methodology employed by most researchers include Finite Element Methods and other Image Analysis Techniques to study the spread of cracks and concluded that Reinforced and Unreinforced samples have been observed to show similar initial response as a result of the linear behavior between the origin and first crack load. However, the influence of the fiber becomes more obvious in the post cracking behavior due to the improvement in the energy absorption and ductility. The post cracking properties is observed to be controlled by the fiber weight ratio and the fiber length. The increase in strength has been observed by some researchers to be linked to the increase in friction between the fiber and the soil matrix. The fibers form bridges across cracks hence preventing the cracks from spreading and therefore contribute to the improved strength. Nevertheless, after a critical point, an increase in fiber content caused strength reduction when fibers begin to knot and overlap each other, thereby resulting in reduced cohesion with the soil and break-up of the soil matrix causing the soil–fiber composite to weaken.

Key Words : Alker, Crack propagation, earthen, Filter paper

CV: ¹Kenechi Kurtis Onochie

Department of Civil Engineering, Cyprus International University, 99258 Lefkoşa, via Mersin 10, Turkey, North Cyprus, +905428767509; konochie@ciu.edu.tr

Core Qualifications: BSc in Building, MSc in Civil Engineering, M.NIOB, A.ASCE, GNSE

Experience: Teaching/Research Assistant, Cyprus International University, 2016 – present Site Engineer, Samal Investment Ltd, 2011 – 2015

CV: ²Ayse Pekrioglu Balkis

Graduated from Eastern Mediterranean Univeristy, 2005 as Civil Engineering (Geotechnique and Construction Materials field)

Asst. Prof Dr. Since 2005, Head of Civil Engineering Deapartment since 2014

Study fields: soil stabilizations with admixtrues, utilization of wastes in construction

The Significance of Cultural Villages to Survive the Southern Ndebele's Earthen Houses

Elaheh Golzari¹, Dr.Amir Bahram Arabahmadi²,



¹Masters student of Southern African Studies at the University of Tehran, Iranian Committee on Troglodyctic Architecture (ICTA)-ICOMOS

²Dean of Southern African Studies department, Faculty of World Studies, University of Tehran

¹ golzari1511@yahoo.com

ABSTRACT

The Southern Ndebele architecture in South Africa is an example of earthen architecture in the African continent. It is a sustainable vernacular architectural style that has transformed and adapted over time to reflect the cultural, ethical, and historical context in the South Ndebele society. The South Ndebele is a branch of Bantu speaking people, Nguni, who migrated into the South African highveld during the fifteenth or early sixteenth centuries and they were defeated by Boers and left their ancestral lands in 1883. According to their migrations over the time, their main tangible culture, architecture has different sequences. In this paper, the researcher used the written sources and descriptive - analytical methodology to explore the different sequences of the Southern Ndebele architecture over the time. In fact, the last sequence of Ndebele earthen architecture has survived with economically marginalized and mostly rural Ndebele families. The results indicate the role of cultural villages as an effective way to survive and conserve the Southern Ndebele architecture. These new cultural villages have opened opportunities in an authentic way to survive the Southern Ndebele people heritage and allow visitors to experience the traditional South Ndebele lifestyle.

Key Words: Cultural village, The Southern Ndebele, Earthen houses, South Africa.

CV: ¹Ms. Elaheh Golzari

Ms. Elaheh Golzari was Lecturer of Architecture at the Science and Art University of Iran. She obtained her masters in architecture at the Science and Art University and she is a masters student of Southern African Studies at the Faculty of World Studies of the University of Tehran. She is a specialist in vernacular architecture and a member of Iranian Committee on Troglodyctic Architecture (ICTA)-ICOMOS. Her main research interests are earthen architecture, hydraulic traditional water system and troglodyte architecture.

CV: ² Dr.Amir Bahram Arabahmadi

Dr. Amir Bahram Arabahmadi is Assistant Professor of Southern African Studies at the Tehran University of Iran. He obtained his PhD in history at the Shahid Behshti University of Iran. Dr. Arabahmadi is a specialist in African's culture, history and costumes. His main research interests are history of Iran, cultural relations between Iran and Africa, and the history Africa.

Determination of Shear Strength of Bamboo Panel



Prachand Man Pradhan¹, Shiva Prasad
Timalisina², Mahesh Raj Bhatt³

Kathmandu University, Dhulikhel-4,
Kavrepalanchok, Nepal

¹prachand@ku.edu.np

ABSTRACT

This paper aims in determining the lateral resistance capacity of the bamboo panel. The main purpose of this study is to determine the shear strength of bamboo wall panel so that this property can be used in the design of earthquake resistant cost-efficient housing incase of Nepal. The test was carried out on two types of panels; one with cement mortar plaster on outer face of panel and other non-plastered. Each type of panel consist of wooden frames with bamboo strips on outer face. Total eight number of samples were prepared for the test with panel size of 600mm by 600mm, with wall thickness of 150mm and 75mm. Also the number and thickness of wooden frame used in the sample varies.

The diagonal compression test method was used to determine the correlation between the lateral resistance and the deflection of bamboo shear wall. The monotonic load was applied until the load has stopped to increase from peak load. The test results showed that ultimate load for various samples varies from 8 kN to 29 kN and also the shear strength for various samples varies from 0.35 MPa to 1.47 MPa, where higher values corresponds to the plastered wall. In similar way, the modulus of rigidity for various samples varies from 7.49 MPa to 87.92 MPa. It can be seen from the results that the wall with cement mortar plaster on outer face helps in resisting more loads, but as we know that the plasters are non-structural components, it is advisable to consider the strength values that obtained for non-plastered wall for the design works.

Key Words: Bamboo Panel, Shear Strength, Nepal

CV: ¹Dr.Prachand Man Pradhan

Proposed Position: Team Leader, Education: Kathmandu University (KU), Dhulikhel, Nepal.
Ph.D. Civil Engineering, (September 2009- Oct.2014), Academic: October 2013 till date,
Kathmandu University, Acting Head of Department, Department of Civil and Geomatics
Engineering

CV: ²Shiva Prasad Timalisina

Civil Engineer (Structural), Education: M.E. in Structural Engineering
Kathmandu University, Dhulikhel-7, Kavrepalanchowk, Nepal, Year: 2015 – 2017 A.D.
Title of Thesis: Characterization of Site Ground Motions & Seismic Response Evaluation of a
Concrete Gravity Dam: A Case Study in Nepal, Academic Experience: Visiting Faculty,
Kathmandu University, Dhulikhel-7, Kavrepalanchowk, Nepal, Year 2015 A.D., Course:
Hydraulic Structures, Year 2016 A.D., Course: Hydraulic Structures

CV: ³Er. Mahesh Raj Bhatt

Education Qualifications: 9/2015-11/2017 ME in Structural Engineering (CGPA 3.81/4) School of Engineering, Dhulikhel, Kavre, Kathmandu University, Nepal.

Dissertation Title: “Study on the effect of vertical irregularities on infilled RC frames under seismic effect”, 2015-Present Freelance worker as self-employed, particularly drafting , Valuation, analysis and design of the buildings as per norms. 25/09/2016-24/3/2017 Teaching assistant (Visiting Faculty member), Kathmandu University, School of Engineering.

Godal Baghcheh (Traditional Courtyard) the Climatic Approach in Desert Region of Iran in Order to Achieve an Earthen Architecture and a Sustainable Environment



Somayeh Omidvari¹, Maryam Omidvari²,
Hamidreza Shirgholami³
Assistant Professor, Faculty of Science and Art,
Science and Arts University, Yazd, Iran,
Science and Arts, Lecturer at the University,
Islamic Azad University of Yazd,
The member of company Nemasazan Kavir, Yazd
¹omidvari660@yahoo.com

ABSTRACT

Godal Baghcheh (Traditional Courtyard) the climatic approach in desert region of Iran in order to achieve a sustainable environment.

Modern societies are encountered with various crises such as environmental, economical, social and identity crises. The study of local or ancient architecture's evidence of any region shows that human attempts to meet the need of themselves were in accommodation with the nature. Yazd is a rich city of practical solutions in order to solve the environmental problems. Small garden is one of the crucial elements in traditional houses of the region situated in the desert of Iran. This element which is usually in the lower space than the level surface of the whole or a part of the front yard has an important role in architectural and urban system of Yazd traditional houses.

Making the mentioned gardens in the depth of the earth causes to decrease air interchangeable wall surfaces and on the other hand it minimize the exchange of heat with outer space. Probing the elements around the small gardens and studying other types of the cases shows that various factors such as changing in ghanats' systems, the flow of underground water, the process of urban development in different historical eras and many other climatic conditions were effective in formation of these small gardens.

This article is going to investigate the specified proportion of the small gardens from the climatic aspect by introducing different patterns of small gardens from the viewpoint of their depth from the earth and the study of such important elements in traditional houses.

Key Words: Godal Baghcheh (Traditional Courtyard) , Proportions, Climatic efficiency

CV: ¹Somayeh Omidvari

Assistant Professor, Faculty of Science and Art,
Science and Arts University, Yazd, Iran, Science and Arts, Lecturer at the University,
Islamic Azad University of Yazd, The member of company Nemasazan Kavir,
¹omidvari660@yahoo.com

Reuse of Traditional Earthen Wind Catchers in Contemporary Architecture (Case Study: Yazd-Iran)



Iman Khajehrezaei¹, Nariman Farahza²,
Mehrnaz Malek³

¹ (M Arch), Lecturer at Yazd Technical University, Iran
¹Iman.7576@gmail.com

ABSTRACT

City of Yazd is well known as the city of " Wind catchers". But due to modern cooling systems arrival, These earthen Elements which used to ventilate and cooling the building at last decades, are being forgotten and constructed less.

Wind catchers can provide summer thermal comfort with little or no use of electricity. therefore can be a part of new buildings design in the hot-arid regions.

In this paper after explaining the design, construction, climatic and structural characteristics of this earthen element, some of the new constructed wind catchers will introduce, which had changed to increase its efficiency according to present use.

The results indicate that if wind catchers equipped with the water vaporization system, the temperature could be decreased considerably and sustainable environmental comfort is achieved.

Key Words: Wind catcher, Earthen structure, Sustainable Cooling System

CV: ¹Iman khajehrezaei

Master of architecture, and ³Mehrnaz Malek ,Phd candidate in architecture, both are one of the young researcher in the field of earthen architecture. They had worked widely in the field of earthen architecture and some of their papers had presented in world conferences like terrasia 2011, terra2012, Lehm2012, Kerpic13, etc. They had tried to introduce new and upgraded earthen construction techniques by holding numerous workshops and festivals in Iran.

CV: ²Nariman Farahza

Architect, PhD of architecture, Assistant Professor at the Art & Architecture faculty of Yazd University and Supervisor of PhD thesis. He teaches some courses like Traditional structure, earthen architecture and restoration. as a scientific member of VARC(Vernacular Architecture Research Center), he works as an expert in restoration of building and fabric in historical city of Yazd, Meybod and Ardakan. He has Managing and holding earthen architecture workshops and done a lot of research on revitalizing the earthen architecture in Iran.

Plano-Convex Bricks in Ancient Mesopotamian Architecture



Alev ERARSLAN

İstanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey
aleverarslan@gmail.com

ABSTRACT

Mudbrick is the main building material used in ancient Near Eastern architecture since the Neolithic Age. With quite a widespread area of use, mudbrick was employed in walls, floors, roof and drain systems in Mesopotamian architecture. The material was also used in columns. Mudbrick columns were used for decorative purposes, especially in the facades of ziggurats and temples. Mud was easy to be found and labor costs were low. In early periods, walls were built up in lumps, with almost no shaping, which was a method named *tauf* in Arabic and *pisé* in English, from the French *pisé de terre*. The mud was then molded or hand-shaped into brick formations.

A range of shapes and sizes of mudbricks appeared through the centuries. Their earliest examples being long and thin, bricks generally took on a rectangular shape in the fourth and third millennia, and were characterized by being twice as long as they were wide. By the Early Dynastic period (3100-2300 BCE), the use of mudbricks had evolved into the frequent use of rectangular materials with convex tops, now known as plano-convex bricks. The name “plano-convex” refers to the special shapes of these bricks, characterized by a cake-shaped, domed upper surface. One of the sides of the brick forms a convex protuberance, very much like the impression of a finger or hand. This particular kind of brick is peculiar only to Mesopotamian architecture. The brick is molded into a rectangular form while the surplus earth on the top is hand-shaped and raised into a mound. The base and sides are flat but the brick is convex on top. The sizes of these bricks are on the average about 10x19x34 cm. The advantages plano-convex bricks held for construction were the speed with which they could be produced and the irregularity of their surfaces, making it easier to apply a finishing plaster coating compared to other types of smoother bricks. These bricks were laid flat but were commonly bonded on walls in a herringbone pattern.

Plano-convex bricks were used in both baked and unbaked form. Clay, bitumen and lime were employed as plaster material. The bricks were used in structurally strategic parts of the building, such as corners and doorframes. Another area in which these types of bricks were used was in the construction of vaulting and arches. This was particularly seen in the Early Dynastic Period.

Keywords: Mudbrick, plano-convex bricks, Ancient Mesopotamian architecture.

CV: Alev Erarslan

She was born in Istanbul in 1969. After completion of his elementary, middle and high school education in Istanbul, She obtained his Bachelors degree in Near Eastern Languages and Cultures from Istanbul University in 1992. Then, She received her Masters degree from Istanbul Technical University, Institute of Social Science in 1996 as Historian of Art, and her Ph.D. degree after completing the program of Istanbul Technical University, Institute of Social Science in 2014 as Historian of Art. She has worked as lecturer at Çanakkale Onsekiz Mart University. She has been working as a lecturer at Istanbul Aydın University since 2009.

Studying the Critical Factors Related to Social Acceptance of Residing in Earthen Houses (Case Study: Yazdi Young Educated Couples)



Shadi Zare Shahabadi¹, Mohsen Abbasi Harofteh²,
Akbar Zare Shahabadi³

School of Art and Architecture, Yazd University
¹shadi.zare Shahabadi@yahoo.com

ABSTRACT

Against the popular opinion, thinking building with earth is not efficient, it is a useful type of building nowadays in which almost one third of the world's population live. Yazd, known as a historic earthen city and now a world heritage city; however, no more use of these materials in newly-built buildings is observed.

An assessment for implementing earthen architecture should be done to know how much Yazdi young couples as a part of society, who need much more for a habitation, are inclined to live in these buildings. In fact, the fundamental question of this research is "how will Yazdi young couples agree to live in the earthen houses?"

Aiming to arouse Yazdi young couple's interest to live in modern earthen houses, this research tries to discover the critical factors related to social acceptance of residing in earthen houses. To achieve this aim, ten open interviews have been carried out to find out the factors having an effect on choosing an appropriate house and after that, they were categorized into four topics: namely, functional, physical, economic and environmental factors. Eventually, according to the expressed theories about the social acceptance of technologies, a model is presented to show the factors which are related to Yazdi young couple's social acceptance of newly-built earthen houses.

Key Words: Earth architecture, Human behavior, Residing, Social acceptance

CV: ¹Shadi Zare Shahabadi

Education, Master of Architecture, School of Art and Architecture, Yazd University, 2016-2018
Thesis: Architectural Solutions for Social Acceptance of Residing in Newly Built Earthen Buildings Bachelor of Architecture, School of Architecture, College of Fine Arts, University of Tehran, 2010-2015, Thesis: Residential Complex in Historical Texture of Yazd

Ecological Sustainability Strategy of Historical Adobe Structures Considering the Energy Stability by Traditional Methods and Nano - Technology



Ozra Ranjbari¹, Hamed Niroomand²

¹Master Student of Architectural Restoration, Colledge of Art & Architecture, Tehran, Iran

²Post-Doc, Quantitative Archaeology Lab, Universitat Autònoma Barcelona, Spain

2.Post-Doc, Assistant Professor, Department of Civil Engineering, BZT University, Qazvin

¹ozra.ranjbari@yahoo.com

ABSTRACT

Nowdays ecological pressures, requires a new approach to upgrade buildings to ecological standards. Building standards for energy effectiveness are increasing constantly and these growth by constructing new buildings in accordance with standards and refurbishment of the existing buildings.

Adobe structures, as part of the existing heritage, like other buildings, require ecological refurbishment to achieve ecological sustainability and Sustainable refurbishment of them works is creating a demand for suitable materials, retrofitting techniques, technologies and research.

This paper at first describes the research of literature and then analyzes it systematically and covers the theme of refurbishment measures considering ecologic sustainability in historical adobe structures the specific measures like insulations.

Then it reviews an abstract of innovative methods or technologies, specially Nano technology for energy saving in clay structures and their potential is given all these factors reflect local and national preferences, generate local identities, and often determine future building decisions.

Key Words: Ecological Sustainability, Adobe Structures, Saving Energy, Nano-technology, Identiy.

CV: ¹Ozra Ranjbari

E-mail: ¹ozra.ranjbari@yahoo.com, Contact no -+98 990 012 9306

Educational Qualification: (Master Student), Architectural Restoration, Tehran-Iran.
(BA.), Architecture Engineering, Urmia - Iran.

Research Experience: Research Field Includes the Historical Researches, Sustainability, landscape & Basic Theories of Architecture Wich Are Presented in Iran & Germany.

Of Sustainability Indicators; Natural Light in Iranian Bazaar



Negar Javadi¹, Ayşe Bilge Işık²

¹Uludağ Universty, Faculty of Architecture, Bursa

¹negar.javadi.n@gmail.com

²isik.bilge@gmail.com

ABSTRACT

Iranian traditional architecture has some specific features. It aims subjects such as aesthetics and environmental matters. These criteria are observed in traditional Iranian buildings like residential houses and in urban spaces such as bazaar, mosque and schools. Sustainable architecture tries to make comfort for users in terms of economic, social and environmental areas. Many of the traditional Iranian buildings having sustainability principles on design has arisen in the old textures of the city. Although these principles are less considered in the contemporary Iranian architecture, it is crucial to preserve this historic city structure.

With the review of sustainability principles used in architectural and urban elements in Iran; it is possible to upgrade the quality of it. In this article the effort is considered on studying bazaar in traditional Iranian architecture as a sustainable urban element. To achieve this goal first we discuss the meanings related to sustainable architecture and its principles then the principles of sustainable architecture especially the use of natural light used in bazaar design is dealt with.

Key Words: Traditional architecture of Iran, Principles of sustainability, Old buildings and texture, Bazaar.

CV: ¹Negar Javadi

Negar Javadi is Phd student of Architecture in Uludağ University. She obtained her M.Arch in Architectural degree at Istanbul Aydin University, and recently researches and writes her thesis about sustainable design named “The place of the sun” in architectural design. Her main interests are, protecting natural resources and avoid damaging the environment and natural life by means of study and research.

Features of Soil-Based Plasters Applied on Mud Wall Surfaces: The Case of Diyarbakır Region



Şefika ERGİN

Department of Architecture, Dicle University, Diyarbakır
sefika@dicle.edu.tr

ABSTRACT

As is known, being a mixture of substances abundant and easily available everywhere, soil has always been used as one of the construction materials to build dwellings since the ancient times. Nowadays, dwellings built of soil-based materials are still used especially in rural areas. The soil-based mud, one of these materials, is an environment-friendly material that can yield high user comfort. As a result of such advantages it provides, soil-based mud is a material that has been investigated by many researchers to enhance its features so as to promote its wider usage. At present, many studies are being performed to investigate ways to enhance the features of walls built by soil-based materials and to protect them against external factors.

In the present study, laboratory experiments were performed to examine the physical and mechanical features of soil-based plasters applied to mud walls. It is of great importance, for the overall protection of a building, that the surfaces of mud walls are protected against external factors and strengthened against negative effects. In this sense, plaster coatings that cover wall surfaces and protect them from the effects of the external environment have an important function to ensure the protection of these walls. We can minimize the damages that can occur at external plaster coatings based on clay only if we specify the features of the plaster to be used. In this study performed to this end, samples from external plaster coatings with clay bond coat were collected from the village of Yuvacık in the district of Bismil in the province of Diyarbakır and subjected to experiments. The experimental examinations aimed to provide insights to the performance of plaster coatings with clay bond coat in respect of ensuring a protection against the factors of the external environment.

Key Words: Mud, Mud-wall, Soil-based Plaster, Clay Soil

CV: Şefika ERGİN ORUÇ

Graduated BSc and MSc from Dicle University, Architectural Faculty, Completed her PhD degree at Mimar Sinan Fine Arts University, currently working at Dicle University Architectural Faculty.

The Features of the Climate-Centred Design in Traditional Dwellings: The Case of Suriçi in Diyarbakır



Şefika ERGİN

Department of Architecture, Dicle University, Diyarbakır
sefika@dicle.edu.tr

ABSTRACT

Climatic factors have played a significant role in designing the architectural characteristics of many structures in places with predominantly traditional dwellings. The principles that should be taken into account in planning in aspects such as the form, shape, direction, façade features and spatial usage of structures are important criteria with respect to a harmonious design matching to local climatic conditions. Architectural plans designed in line with climatic conditions ensure that users of structures get protected from negative effects of cold and hot periods of the year while, on the other hand, benefiting from positive effects. A structure design in harmony with local climate is an effective tool in ensuring the conditions of climatic comfort conditions in internal spaces and reducing the need of energy in structures.

Climatic factors did also play the most determinant role in designing the traditional architectural fabric of the dwellings in the district of Suriçi (Walled Town) in Diyarbakır and in the development of the architectural character of the area where these dwellings are located. Having a decisive role in the design of traditional dwellings in the area of Suriçi, the principles of design specified to match to the negative effects arising from hot-dry climate in the province of Diyarbakır have distributed to the formation of a local architectural identity.

This study is of importance with respect to ensuring the usage of the traditional houses in the area of Suriçi in Diyarbakır in a manner whereby special attention is paid to the protection and preservation of their original architectural features. The study aims, in this sense, to define the architectural development of the traditional houses located in Suriçi in line with climatic conditions. The study examines, to this end, the architectural solutions provided in the dwellings with focus on the local climatic conditions. The investigations conducted in the study show that the traditional dwellings in Suriçi have design characteristics in harmony with the local climate as regards providing climatic comfort conditions.

Key Words: Traditional Houses of Diyarbakır, Architectural Formation, Design in Line with Climate

CV: Şefika ERGİN ORUÇ

Graduated BSc and MSc from Dicle University, Architectural Faculty, Completed her PhD degree at Mimar Sinan Fine Arts University, currently working at Dicle University Architectural Faculty.

Approach on Preservation of Cultural Heritage against Disasters



Aysel Tarım¹, E. Sibel Hattap²

¹Y.T.U. Architecture Faculty, Restoration Department,

²Mimar Sinan Fine Arts University, İstanbul

¹ayseltarim@gmail.com

²sibelhattap@gmail.com, sibel.hattap@msgsu.edu.tr

ABSTRACT

Identified as the incidents that result from nature, technology and human, which leads to severe troubles in social life and disrupts the daily life; that results in human, material, economical and environmental losses and that go beyond the control of community to cope with such circumstances with their own resources, disasters have significantly increased in terms of their occurrences and sizes recently. Taking a toll on cultural heritage areas as well, disasters, which are experienced today, has once more emphasized the importance of preservation and grasped our attention. Given the cultural heritage, it becomes the most important phenomenon not only to protect the building or assess the extent of the damage on the basis of area but also protect the spirit of the place as well as the traditions which make culture itself.

The objective of this study is to shed light on preservation procedures by seeking the answer for what can be done to produce the cultural heritage before, during and after a natural disaster. With this in mind, an analysis sampling was conducted through risk analysis on the basis of Haydarpaşa station, a sample of cultural heritage, for the precautionary works before the disasters and disaster prevention and reducing the impacts of the same was elaborated.

Key Words: Cultural Heritage, Disaster, Preservation, Haydarpaşa Station, Risk Analysis

CV: ¹Aysel Tarım

Born in Trabzon. Ph.D. student: Yıldız Technical University, Faculty of Architecture, İstanbul, Turkey (2016-), Part-time lecturer: İstanbul Aydın University, Faculty of Architecture, Turkey (2017-).

Graduated from Karadeniz Technical University, Faculty of Forestry, Department of Forest Industry Engineering in 2004. Employed as production planning and project coordinator in the private sector between 2004-2014. Completed Architectural Post-Graduate Study in İstanbul Aydın University, Faculty of Architecture in 2016. Still continues her doctorate study as student in Yıldız Technical University, Faculty of Architecture, Department of Restoration. She has nine scientific presentations presented at and published in the proceedings of international scientific conferences.

CV: ² Assist. Prof. Dr. E. Sibel Hattap,

sibel.hattap@msgsu.edu.tr, sibelhattap@gmail.com

Born in Istanbul. She is an architect and restorator. She is working at the Mimar Sinan Fine Arts University. She completed her doctorate at the Structural Physics and Material in MSFAU. She developed “Protective Test Performance Device” in order to research the effects of chemical and environmental factors and protection of Stone-like materials used in historical buildings while she was working on her doctorate thesis. She earned a mention award from the Invention Competition.

Of Sustainability Indicators; Geothermal Energy in Iranian Architecture (Showadan)



Sara Khooshroo¹, Ayşe Bilge Işık²

¹Uludağ University, Faculty of Architecture, Bursa

¹Sara.khooshroo@gmail.com

²isik.bilge@gmail.com

ABSTRACT

In the past, people built their buildings in such a way to fit the climatic conditions and native culture of the area without knowing the modern science and developments in modern design and architecture. Nowadays, due to the progress of science, the mysterious architecture has been discovered from ancient designs.

Showadans is an example of such designs done in cold regions such as Hamedan city, in a way that they allow people to live in these spaces during the cold seasons and enjoy the warmth of the underground. Showadans are made by a collection of corridors underground used by the people in cold areas. In this research we intend to change the use of these Showadans into thermal tunnel for the use of geothermal energy. As a plan can say that Showadans will be designed as before and will be placed much deeper below the ground as a basement to take advantage of the warmth of the earth. This heat is driven into the buildings in cold seasons, which in addition to saving energy, is one of the architectural elements of the past given the increasing growth of today's technology.

Key Words: Sustainability, Geothermal, Iranian Architecture, Energy, Showadan.

CV: ¹Sara Khooshroo

She is Phd student of Architecture in Uludağ university. She obtained her M.Arch in architectural degree at Istanbul Aydin University and recent researches and writes her thesis about the relationship between sustainable design and traditional architecture. She is mainly interested in searching and studying about reconciling human architecture designs with nature in a way that small designs have a part in keeping the earth. alive while reducing the human damages to a more beautiful nature and earth.

Evaluation of Cultural Architectural Areas as “Archaeopark” Projects



Aydanur Yenel

Hasan Kalyoncu University-Gaziantep, Turkey
aydanur.yenel@hku.edu.tr
aydanur_yenel@yahoo.com.tr

ABSTRACT

This paper presents the protection of the cultural architectural heritage of Anatolia, which has a special geography in the world as a country with rich civilizations based on thousands of years of history, according to the content of the ICOMOS statute.

The main purpose of this study, the changing living conditions today, has also changed the meanings of the spaces. Reclaiming the meaning of urban elements and reestablishing the network of urban relationships will be the greatest heritage we will leave for future generations. In our country, we see that institutionalization is increasingly adopted in order to protect natural and historical riches.

The research method is for a urban area with a high quality of life and aesthetic quality in the context of Sustainable Life/Environmental Conservation; archaeological/historical/ etc. programs for the research of urban identity and the designs to be done are evaluated together with the environment in the urban dimension, which is an important urban problem, and in the framework of city value as a public space. This cultural archaeocide has been mentioned as a valuable asset in terms of historical value, in terms of better understanding of the world in which our society lives, as well as of economic prestige in terms of archaeopark and archaeoturizm potential.

As a result, the existence of cultural continuity and the formation of settlement localization of Anatolian cities; it is a vital necessity to evaluate past accumulation as the most important data in the design of the future. In urban sustainability, there is a close relationship between urban spaces and new spaces, the reinterpretation of conceptual recreational spaces, and the design of urban spaces.

Key words:Anatolia, Protection, Cultural Architectural Heritage, Public Space Planning, Archaeopark

CV: Aydanur Yenel

ADMMA(Gazi University) graduated with a bachelor's degree in 1983 from the Faculty of Architecture, master's degree in 1987 from METU Faculty of Architecture, Hacettepe University, Faculty of Fine Arts, received a doctorate / arts proficiency degree in 2007.

Hasan Kalyoncu University, Faculty of Fine Arts and Architecture Full-time Assist. Assoc. Dr. She works as a teaching member.

Adobe Use in the Eco-Village of Büyükkonuk on the Karpaz Peninsula



**Aysun Ferrah Güner¹, Gülhan Benli²,
Pelin Karaçar³, M. Adil Kasapseçkin⁴**

¹Istanbul Medipol University, Ekinciler Cad.
No:19 Beykoz, Istanbul,
afguner@medipol.edu.tr, gbenli@medipol.edu.tr,
pkaracar@medipol.edu.tr, makasapseckin@medipol.edu.tr

ABSTRACT

Urban identity is shaped by the geographical and human resources, historical, aesthetic and artistic features, and local architectural fabric that is formed over time. The preservation and transmissibility of the genuinely tangible and abstract features play a crucial role in sustaining this identity. In this age of rapid technological advances, social, economic and physical developments result transform cities in many different ways. While technological advances improve the construction methods and urbanization techniques modernize cities, they also have negative effects on local urban identity. The traditional architectural fabric in regions that are not parts of big cities has been deteriorating for the last quarter century.

One solution for this is ecological living based on fixing these negative physical effects, creating self-sustaining living conditions, benefiting from natural resources and living with only local resources. Eco-villages fit in this description, and also play an important role in the sustainability of environmental resources, preserving historical heritage and ensuring social equality.

Büyükkonuk is an eco-village on the Karpaz Peninsula in Northern Cyprus. It is on the list of internationally recognized eco-villages and has an old, village fabric with traditional adobe and stone houses that have courtyards and arched porches. The inhabitants of Büyükkonuk still use natural materials such as stone, soil, straw and clay in their everyday life to preserve the traditional architectural fabric of the place. This leads to new architectural implementations that respect the nature, the environment and the village's traditional way of living.

This research investigates the traditional construction techniques that are still used today and the stone and adobe houses that create the local Büyükkonuk identity, and discusses the experience of building a bus stop made entirely of adobe.

Key Words : Adobe, Eco-village, Sustainable design, Architectural heritage

CV: ¹Aysun Ferrah Güner; studied Architecture at the Istanbul Technical University and has Phd degree in in the field of construction management. She is Assistant Professor of Architecture at Istanbul Medipol University, School of Fine Arts, Design and Architecture. Her research fields are project management, design management and coordination, product development, total quality management in construction industry.

CV: ²Gülhan Benli; studied Architecture at the Istanbul Technical University and has Phd degree in in the field of survey and restoration. She is Assistant Professor of Architecture at Istanbul Medipol University, School of Fine Arts, Design and Architecture. She has academic studies on urban design, documentation in protected areas, survey techniques, protection and preservation of historical buildings.

CV: ³Pelin Karaçar; studied Architecture at the Istanbul Technical University and has Phd degree in in the field of construction technology. She is Assistant Professor of Architecture at Istanbul Medipol University, School of Fine Arts, Design and Architecture. She has academic studies on technological innovations in construction products, nano technological materials and sustainability, timber building technology, ecology and project management.

CV: ⁴M. Adil Kasapseçkin; studied Interior Architecture at the Çankaya University and has Phd degree in in the field of interior architecture. He is Assistant Professor of Architecture at Istanbul Medipol University, School of Fine Arts, Design and Architecture. His research interests are digital architecture and design, interior design, materials and technologies in design.

Differences in Construction Standards and Regulations of Earthen: Cases in North Cyprus, New Zealand and Europe



Ayse Pekrioglu Balkis

Department of Civil Engineering, Cyprus International University,
99258 Lefkoşa, via Mersin 10,
Turkey, North Cyprus
apekrioglu@ciu.edu.tr

ABSTRACT

Adobe is one of the oldest and most widespread forms of construction. As the time passes, there have been some improvements in materials and techniques used in earthen constructions. Although earthen construction have not been used in recent decades, researches shows that these materials may still be used in construction sector especially for the arid climatic regions. Earthen construction has simple technology needs and natural materials. Adobe is an environmentally friendly material that does not require additional energy resources for its production and application. In this study, use of adobe in North Cyprus and also their main causes of deterioration have been explained to clarify the need for new materials. Building materials and environmental resources are also investigated to check socio-cultural, economic and ecological sustainability.

Since North Cyprus is on third earthquake region, since 2007, changes have been done on standards and regulations considering earthquake. There was a need to improve classical earthen to satisfy earthquake requirements. Earthen materials have been improved by adding gypsum which shows better physical and mechanical properties with respect to standard adobe and it is named as Alker. This mixture has been studied to meet the needs of sustainability and ease of construction. Their physical and mechanical behaviors have been studied previously and results are commented here to show the applicability of Alker in earthquake regions. Changes in standards and regulations show that earthen construction may be used nowadays as in past, only care with materials and application techniques. In different countries research on mechanical properties of adobe, methods of improving its performance and behavior with earthquake of adobe structures has been undertaken.

This study focus on the changes in the earthen construction standards and regulations for 1997 and 2007 applied in North Cyprus. European, New Zealand and Turkish standards and regulations have been studied and with this study, differences among them will be clarified.

Key Words: Alker, Earthen construction, Earthquake, Standards and regulations

CV: Ayse Pekrioglu Balkis

Graduated from Eastern Mediterranean University, 2005 as Civil Engineering (Geotechnique and Construction Materials field)

Asst. Prof Dr. Since 2005, Head of Civil Engineering Department since 2014

Study fields: soil stabilizations with admixtures, utilization of wastes in construction

Examination of Earth Structure Production in Ecological Design



Dilek Ekşi Akbulut¹, Z. Gülşah Koç²

¹Y.T.U. Architecture Faculty,
Architecture Department, Beşiktaş İstanbul

¹dileksi@yahoo.com

²architectkoc_gulsah@hotmail.com

ABSTRACT

Considering the fact that more than 50% of the world population live in cities and in the course of the following 50 years this ratio will increase by approximately 60%, it is estimated that this growing population will increase the resource consumption leading to an increase in the amount of the emissions and wastes. Land usage changes with urbanization and this causes a pressure on the natural resources and ecosystems.

Throughout the world, day by day more countries adopt the ecological design principle and prefer environmentally friendly materials in building construction. In this regard, the systems in which the wastes are used as raw materials (industrial ecosystems) and the ecological design principle at architectural scale have a positive effect on achieving the energy and resource efficiency. Energy and resource usage together with the material selection are important parameters in ecological design. The materials that will be selected should be in compliance with the ecosystem and should not return as waste. Throughout its life cycle, the environmental effects of every material that will be used in the building construction must be well known. In this context, soil-based materials are considered as economic, ecological and non-waste producing materials that are in compliance with the ecosystem criteria and providing energy and resource efficiency.

In Turkey, the excavation soil observed to be increasing with the urban transformation activities can be considered to be used in construction of the modern earth structures within the concept of ecological design. Excavated soil can be included in the building construction to form a loop and if its structure is suitable it can even be used in industrial areas where the soil is the raw material.

In this study; it is aimed to investigate the soil structures that are constructed via different construction techniques within the concept of building life cycle. In this regard, it will be attempted to define the ecological characteristics of the soil material usage as building material.

Key Words: Ecological Design, Natural Resource Consumption, Industrial Ecosystem, Earth Construction Techniques, Earth Construction Standards and Regulations.

CV

¹Asist. Prof. Dr. Dilek EKŞİ AKBULUT

Y.T.U. Architecture Faculty, Architecture Department

²Z.Gülşah Koç

Graduated from Maltepe University in 2009 then she worked as an architect in different offices in 2010-2015. She continued her MSc degree at Yıldız Technical University and graduated in 2017. Her master thesis is “Examination of Earth Construction Systems and Regulations Within The Scope of Eco-Design”.

Traditional Adobe Houses Project in Van-Kalecik



Şahabettin Öztürk

Van Yüzüncü Yıl University,
Faculty of Architecture and Design, Department of Architecture
Tuşba/VAN/TÜRKİYE
email: sahozturk13@gmail.com

ABSTRACT

The first examples of residential architecture in Van developed in the old city of Van, located in the south of the historic Van Fortress, until the early 20th century. After 1920, new houses have been added in groups to the structures that were built as vineyard houses in today's Van city. These houses, which were built as single-storey and two-storey structures, were built in an adjacent order with flat earth shelters and adobe brick material.

Houses in the old city of Van were completely burned down in 1918 during the retreat of the Russians and Armenians from the region. In the following years, the development process of the residential architecture has continued in the various central neighborhoods of today's Van city. Due to the vastness of the land and this development, each house was independently constructed in a detached order within a street, house, courtyard, orchard and garden relationship.

Since 1970, the rapidly changing and developing social life conditions in today's Van city have resulted in the abandonment and/or demolition of traditional houses as a result of the desire of people for concrete houses. As a result of disrepair and neglect, firstly the traditional Van houses which are the examples of civil architecture that created the unique urban texture of Van city, and then the streets and neighborhoods were demolished and destroyed. Four traditional Van houses, Van shops and Van neighborhood that make up the street structure were planned of different plan types in order to conserve the traditional Van houses which were destroyed and demolished, to offer them to the cultural tourism, and to teach and introduce them to younger generations.

With the financial support of the Ministry of Development, it was completed by the Municipality of Tuşba, between the years 2015-18, in the district of Kalecik, which is the most dominant region of Van province. The project was awarded the first prize of Turkey by the Anatolian Local Administrations Organization in 2015.

Keywords: Adobe, Earth Shelter, Detached Order, Mud, Traditional

CV: Şahabettin Öztürk

Van Yüzüncü Yıl University,
Faculty of Architecture and Design, Department of Architecture

A Study on the Role of Sunken Courtyard in Sustainable Architecture of Iranian Desert Cities (Case Study: Olumi House in Yazd)



Saeed Nasiri¹, Nariman Farhza²,
Seyyed Keyvan Goldansaz³
Fereshte Sadegheih⁴, Roya Babaei⁵

Yazd University, Yazd, Iran
saeed.n.341@gmail.com
keyvan.goldansaz@arch.iust.ac.ir

ABSTRACT

The energy crisis, environmental threats and the consumption of fossil fuels and its consequences on human life are among the most important challenges that today's people are facing. Iranian native architecture and urbanization have played a significant role in coordinating the building with the earth and sustainability and have responded to human needs particularly in the hot and dry climate. While architecture today represents a blind imitation of western architecture and urbanization and a lack of knowledge of the values of traditional Iranian architecture. Meanwhile, the traditional Iranian architecture has sought to create an order based on natural gifts and harmony with the order of nature in which to meet the mental and physical needs of humans. Hence, the sunken courtyard was one of the factors that influenced the creation of human comfort in a hot and dry climate and provided interactions and dynamics in the human environment. A little reflection on the sustainable architecture and its principles will lead us to the native architecture of our country's ancestors. The aim of native architecture is essentially the pursuit of sustainable architecture. The purpose of this paper is to study the role of the sunken courtyard and the factors that affect the stability of this kind of building. The research method of this article is a historical descriptive study. The results of this study indicate that this indicator element is a small but exquisite example of a sustainable architecture for the use of natural energies and has created comfort in the houses of this region.

Keywords: Sunken Courtyard, Sustainable Architecture, Traditional Architecture, Yazd

CV: Saeed Nasiri (MA Architecture Student, Yazd University, Iran)

Nariman Farhza (Assistant Professor, Yazd University, Iran)

Seyyed Keyvan Goldansaz (MSc Conservation and Restoration of Historic Buildings, IUST, Iran)

Fereshte Sadegheih (MA Architecture, Yazd University, Iran)

Roya Babaei (MA Architecture Student, Khorasgan Azad University, Iran)

Köyceğiz Movie Plateau



Erkan Alişan¹, Onur Gürsu²

İlliyyun Project, Köyceğiz / Muğla, Turkey
Sustainable and low energy dependent living
space construction

¹ erkanalisan1@hotmail.com;

² onur.gursu@gmail.com

ABSTRACT

The purpose of this presentation is to share the production experience that we have gained during the construction of 800 meter square Alker structures of Beşiktaş Kültür Merkezi (Beşiktaş Culture Center) Köyceğiz Movie Plateau. We are very excited about Alker / Earth which we think is a magnificent construction material and sharing this with you the academics.

The stages and the results of the compression apparatus which we have developed as the result of our experiences are shown in our presentation. You will also find the visual of the two form houses that we are in the process of constructing using the apparatus we have improved.

Key Words: Alker, Sustainable, Köyceğiz Movie Plateau,

CV: ¹Erkan Alişan, ²Onur Gürsu

Company: "İlliyyun Project" Sustainable And Low Energy Dependent Living Space Construction".

Köyceğiz / Muğla / Turkey

Erkan Alişan / Architect, Painter and Sculpter, erkanalisan1@hotmail.com

Onur Gürsu / Permaculture Designer and Holistic Management , onur.gursu@gmail.com

Earth and Bamboo: Experience from Nepal



Nripal Adhikary¹, Prachand Man Pradhan²

Adobe and Bamboo Research Institute, 314

¹Dhobidhara, Kathmandu, Nepal

¹nripal@abari.org

ABSTRACT

Nepal lies in a seismically active and subtropical climactic zone, yet according to Nepal's Living Standard Survey 82% of the Nepali houses are made of earthen material [1]. In order to tackle the challenge of earthquakes and high moisture, people in Nepal have used earth and bamboo/wood combination to create reinforced structures and high pitched yet light weight roofing system to tackle high rainfall. Using these techniques, people have built earthen structures as high as five stories. For last three years, the author has been revisiting these old techniques so that they can be used in modern design practices. Author has designed and supervised more than a dozens building using the combination of bamboo and earth. In this paper, author will describe the unique bamboo and clay construction techniques including earth and bamboo stitching techniques, post-compressed structures, and many other architectural elements.

Keywords: Bamboo, Adobe, Rammed earth, Reinforcement historic buildings, Nepal

CV: ¹Nripal Adhikary¹, Prachand Man Pradhan²

Adobe and Bamboo Research Institute, 314

Dhobidhara, Kathmandu, Nepal, nripal@abari.org

CV: ²Dr.Prachand Man Pradhan

Proposed Position: Team Leader, Education: Kathmandu University (KU), Dhulikhel, Nepal.

Ph.D. Civil Engineering, (September 2009- Oct.2014), Academic: October 2013 till date, Kathmandu University, Acting Head of Department, Department of Civil and Geomatics Engineering

Analysis of the Concept of Construction Biology in the Context of Electrification in Modern Architecture



Merve Anaç¹, Mustafa İncesakal²

Hasan Kalyoncu University
Şahinbey/Gaziantep
merve.anac@hku.edu.tr
mustafa.incesakal@hku.edu.tr

ABSTRACT

With rapid population growth, the need for housing has become unattainable and rapid building production techniques have been needed. Traditional building production technology has left its place in industrial production. With the development of technology, new building production techniques and new building materials have emerged.

Current building materials have accompanied their positive aspects and their negative aspects. In addition to their easy and fast production facilities, they are harmful to the structure and people because it is a material that holds or produces static electricity at the same time. We have proven that the devices we use static electricity in the buildings have been damaged by scientific studies. This static electricity has not only been found in devices but also in human health. Structural and human health problems have been studied through the concept of building biology. The damage of electrification has been determined by defining the concept of building biology.

As a result, when the electrical loads generated by the structures can be removed by the grounding method, the electrical loads in the structures can be grounded by using the mud brick materials which are the building material earth. In this context, adobe material is examined to determine the damage of static electricity min. downloading is aimed. The mudbrick constructions used from the past to the present day are examined in many contexts. In this study, the adobe material studied in many subjects was examined in the context of electrification. It has been proven that the development of technology and the improvements in building materials are ecological building materials of adobe material compared with traditional materials in order to solve the problems that occur together.

Key Words : Electrification, Adobe, Structure biology

Cv: ¹Merve Anaç: received B.A. degree in School of Architecture from Selcuk University, Konya, Turkey in 2016. She is currently working as a research assistant at Hasan Kalyoncu University. Her research interest is on technological innovations and detail of kinetic architecture.

Cv: ²Mustafa incesakal studied Architecture at the Selcuk University and has Phd degree in in thefield of middle Anatolia vineyards. He is Assistant Professor of Architecture at Hasan Kalyoncu University. She has academic studies on structur knowledge, technologies in design, material of building, ecology and project management.

An Overview of the Design of Low-cost and Adobe Housing for Afghan Refugees, Ardakan, Iran



Mansoure Dormohamadi¹, Nariman Farahza²

Art and Architecture University of Yazd, Iran

¹dormohamadi_m@yahoo.com

ABSTRACT

Afghan refugees' housing in some of Iranian cities due to dense population and financial disabilities is suffering some problems such as lack of appropriate high quality living space. To solve this problem and minimizing costs, vernacular architecture can be a useful assistance. One of these inhabiting areas is located in Ardakan, a city in Yazd province. During a social and architectural research, it was comprehended that to construct an inexpensive house, Earthen architecture can be utilized. By considering the refugees' needs, functions were distinguished. Furthermore, we probed soils of region and methods to enforce adobe. Finally, some patterns was designed based on inhabitants' requirements and vision of housing development.

Key Words: Afghan refugees, Earthen architecture, Adobe

CV: ¹Mansoure Dormohamadi

Art and Architecture University of Yazd, Iran.
She is e-mail: dormohamadi_m@yahoo.com

CV: ²Nariman Farahza

Architect, PhD of architecture, Assistant Professor at the Art & Architecture faculty of Yazd University and Supervisor of PhD thesis. He teaches some courses like Traditional structure, earthen architecture and restoration. as a scientific member of VARC(Vernacular Architecture Research Center), he works as an expert in restoration of building and fabric in historical city of Yazd, Meybod and Ardakan. He has Managing and holding earthen architecture workshops and done a lot of research on revitalizing the earthen architecture in Iran.

Land Use and Recognition of Construction Techniques Based on Land Use and Geographical Climatic Conditions



Rasha Elborgy¹, Genco Berkin²

Fatih Sultan Mehmet Vakıf Univ.
Istanbul, Turkey

¹rasha.borgy@gmail.com

ABSTRACT

Technology controls our lives in a very high way and thus reflected on architecture, it leads us to two pints, first, gradually we stay away from the architectural identity in some countries like in Egypt, Sec. The prices of building materials and housing prices increased significantly. While the environment provided to us a natural materials to use. As Hassan Fathy Said "Allah has created in every environment materials what resists its problems, the intelligent architect who can deal with those materials in a right way". The aim of this research is to use one of the most important materials in Egypt, the Palm Frond, instead of rice straw. The Research Methodology is Knowledge of this architectural style, studying the climatic and geographical conditions for making mud brick (Adobe) especially in Egypt, Learn about Hassan Fathy's philosophy and his experience in this field and studying the mud brick content. According to this knowledge we used the Palm fronds, It has been chemically analyzed to know the percentage of cellulose which is important for fermentation process, also analyzed a samples of Delta soil from Egypt, after mixing all together we get a good result, the palm frond affect good in the brick strength.

Key Words : Architecture of poor, Back to earth, Date palm content, Adobe brick fermentation

CV: ¹Rasha Elborgy Graduated from Alex. Univ. Egypt, got my master degree from A.A.S.T Alex. Egypt in Preservation of historical building by relocation, worked in bibliotheca alexandrina (Libraryof Alexandria) in saving heritage Dep. Came to Turkey for Phd, Participated in workshop in Holland about earth archit.

Effects of Developing Technology on Earth Shelter's Architectural Design



Seyma İncesakal¹, Ennur İncesakal²,

¹ Hasan Kalyoncu University, Gaziantep

² Istanbul Medipol University, Istanbul

¹seyma.incesakal@hku.edu.tr,

²eincesakal@medipol.edu.tr

ABSTRACT

The use of earth shelters by human beings that started with the use of caves in the mountains and hills is now being reconstructed with the human efforts for returning to natural and nature which seems to be a solution option of green architecture thanks to the effects of technological developments.

Thanks to the developments in nanotechnology, the development of steel structure systems, glass facade systems and advanced lighting solutions, smart facades and smart textiles which can be integrated into any formal and fictional approach in earth shelter architecture design, earth shelter spaces can serve as functional, aesthetic, robust, sustainable, bioclimatic, and energy efficient spaces which can be able to offer a comfortable space experience where people are associated with soil, water and their natural habitat. With the evolving technologies for intelligent buildings, energy efficient buildings, sustainable and ecological approaches (green buildings, passive spaces, awareness of recycling resources, certification systems like LEED, BREEM), nanotechnological materials, smart textiles, smart skin applications and increasing interdisciplinary studies, it is thought that the earth shelter's space experience will be increasingly attractive for space users thanks to increasing simultaneous technological feedbacks. The contribution of all these technologies to the underground spatial quality and the urban visual quality and quality of life thanks to the simultaneous development of virtual space experiences and virtual reality systems will be evaluated and examined in this paper.

In this context, the Turkcell arge Complex and some other buildings will be considered as samples and thanks to biomimicry, contributions of ancient civilizations and acquisition of the architectural collective information transferred from the past related to the earth shelter architecture will be examined.

Technological developments have been examined under subheadings such as the effects on space configuration in earth shelter architecture, roof and facade (building skin) design of earth shelters, space comfort, texture, color, material related effects and user oriented perceptual and awareness effects on earth shelter spaces.

Designing the earth shelters with this acquisitions from past, with contributions of simultaneous development process of technology and transferring these designs to next generations are important steps for space creators. It is the architect's primary responsibility to be able to meet the changing demands of the changing world (multifunctionalism, lightness, resilience) by providing simultaneous architectural solutions thanks to technological developments with the awareness that the building and the space are living and growing organisms.

Key Words : Sustainable Design, Earth shelters, Architectural Design, Developing Technologies, Green Architecture

CV: ¹Şeyma İncesakal; studied Architecture at the Süleyman Demirel University and has master degree at Selçuk University with master thesis titled "Architectural Design Principles of Earth Shelters and Underground Spaces". She started her business life in MASEL Architecture in 2008 and continued to work in İstanbul in companies such as TAMA, SCALA, Sabri Paşayığıt Design Office (SPDO), Atölye T and HasKoen. She is Research Assistant at Hasan Kalyoncu University, School of Fine Arts, Design and Architecture, Interior Architecture and Environmental Design Department. Her research fields are Architectural Design, Earth shelters, Ecology, Sustainability, Interior Design, Multifunctionalism, New technologies in design.

CV: ²Ennur İncesakal; studied at Architecture at Yıldız Technical University and she has still continue to study master program in Architectural Design at Istanbul Technical University. She is Research Assistant at Istanbul Medipol University, School of Fine Arts, Design and Architecture. Her research fields are Architectural Design, Architectural Computation, Cognitive Science, Virtual / Augmented Reality, New Technologies in Design, Parametric Design.

Factors Leading to The Deterioration of Halfeti Houses and Recommendations for Preservation



Emine Ekinci Dağtekin¹,
Mustafa Topalan²

Dicle University, Faculty of Architecture,
Department of Architecture Diyarbakır
¹eminedagtekin@hotmail.com

ABSTRACT

Halfeti is a residential area located between the cities of Şanlıurfa and Gaziantep, whose history coincides with that of Rum Kale (Greek Castle). It is located on a hillside facing the Euphrates River. In addition to serving as a residential area, the hill is also an archeological site. Most of the hill is covered with caves engraved in a bedrock. Halfeti houses were built upon these caves. Halfeti houses, positioned according to the topography, differ from other residential areas in terms of not using the roof of adjacent low-elevation structure despite the terracing they create by lining up one behind the other. There are currently two main streets in Halfeti; access to houses is via stairs linked to these streets and built perpendicularly to the slope.

Halfeti houses show similar characteristics to Birecik and Gaziantep houses in terms of their facade, woodwork and stone ornamentation. Houses are generally two-storey with cave hollows in most of the bottom floors. The hollows in the bottom floor are used as functional areas such as barn, kitchen and storerooms. The top floor, on the other hand, is the living area. There are rooms, iwan and balcony in the top floor.

The main construction materials used in Halfeti houses are limestone and wood. Rubbles and irregular stone patterns are used for the bottom floor, while regularly-aligned stones are used for the top floor. Although Halfeti is not sufficiently rich in plants, the trees at the sides of the Euphrates River were utilized as both static material and aesthetics material in construction. The size of wood used as load-bearing element in Halfeti houses caused limitations in the size of houses.

The primary factor leading to the deterioration of Halfeti houses is the Birecik Dam built in 2000. Following the construction of the dam, a large part of the residential area sank beneath water, and the city texture, streets, neighbourhoods and buildings that constitute the city's silhouette such as mosques, baths, tombs and houses were exposed to the danger of disappearing. Severe cracks occurred in the walls of houses close to the river that survived the flood due to their deteriorated foundations. The disruption of social structure as a result of the construction of the dam led to forced migrations in the district, and thus the abandonment and ruin of traditional buildings.

The present study will provide information regarding the factors leading to the deterioration of traditional Halfeti houses and the materials and construction techniques, and will address the types of interventions for their preservation.

Key Words: Halfeti houses, Deterioration, Material, Construction technique, Preservation

CV: ¹Emine EKİNCİ DAĞTEKİN, Assist.Prof. Dr.

Dağtekin, who graduated from Dicle University, Faculty for Architecture, Department of Architecture in 1995, has completed his host graduate and doctor's degree at Gazi University, Faculty for Architecture, Department of Architecture. She has written many national and international essays on traditional Turkish baths, traditional houses, Diyarbakır's urban layout, preservation and restoration.

CV: ²Mustafa TOPALAN, Msc. Arch.

Topalan, who graduated from Dicle University, Faculty for Architecture, Department of Architecture in 2009, has completed his host graduate degree at Dicle University, Faculty for Architecture, Department of Architecture. He works at the Ministry of Culture and Tourism.

The Potential of Adobe Use in Modern Turkish Architecture with the agenda of Sustainability



**Özlem Geylani¹, A.Tolga İlter²,
Pelin Karaçar³**

^{1,2}Istanbul Technical University, Istanbul,

³Istanbul Medipol University, Istanbul,

geylani@itu.edu.tr,

iltert@itu.edu.tr,

pkaracar@medipol.edu.tr

ABSTRACT

Earth as a natural building material may also be regarded as an important solution for sheltering requirements. The natural morphology of geographical regions and climatic conditions of the residential areas for architectural typology, also relate the reasons for choosing adobe material for its less labor requirements and accessible acquisition. The people who were chosen settled life style rather than nomadic, produced rational, temporary and permanent solution while they brought their culture, attitude, demands to the districts where they settled.

The capacity of adobe material about appropriateness to the different climatic conditions, its natural structure, the less energy requirement during its production, its sustainability, thermal isolation capability; in winter it reserves warm air for a long time and in summer time it resists to hot air and keeps cool in inner air conditions. Moreover, its a breathing and damp proof material, which may also be used with other environment friendly building materials that supply comfort conditions for users.

Scarcely, the increase of environmental problems and threatening dimensions of human health, triggered to develop sustainable architectural solutions aiming at protecting ecological system balances. In this sense, the designs of modern architectural buildings, environment friendly design solutions are recommended at building material level and dissemination of usage of adobe as a natural building material with clean energy production equipment will hopefully help to reduce carbon release.

In this study, with the effect of increased sustainability concerns in the construction industry; prominent international rammed earth and adobe construction examples are examined. Under the light of these distinguished cases, an evaluation is made for similar material and construction methods in Turkey. The potential of spreading adobe and rammed earth construction combined with modern construction methods is quite significant. Thus, this paper aims to attract attention to promote this construction method for ecological village projects as well as independent architectural initiatives.

Key Words: Adobe, Architecture, Building Materials, Sustainability, Traditional Turkish Houses, Vernacular Traditional Construction Techniques

CV: ¹ Özlem Geylani, MSc Architect, PhD Candidate.

Geylani received her B.A. in 2008 in the Department of Architecture and completed her M.A. in the field of Project and Construction Management in 2012 in İstanbul Technical University and still a Ph.D. candidate in the field of Construction Sciences. She has carries out academic studies on Project Management, Resource Management, Construction Sciences, Building Materials and Building Information Modelling.

CV: ²Dr. A. Tolga İlter

Born in Ankara in 1972. After graduating from TED Ankara College High School, he got his Bachelor's degree in Architecture from ITU in 1994. Worked as an architect and project coordinator. He got his MA degree on Architectural Design from METU in 1998, and MSc degree on project management from ITU in 2001. During his PhD research he attended University of Salford, Manchester as a visiting researcher, between 2006 and 2007. He earned his PhD from ITU in 2011. After working 15 years in ITU Project Management Center as a project coordinator, he is currently employed in ITU Informatics Institute as a lecturer. He is the academic program coordinator of IT in Construction Management Master's Degree program.

CV: ³Pelin Karaçar; studied Architecture at the Istanbul Technical University and has Phd degree in in the field of construction technology. She is Assistant Professor of Architecture at Istanbul Medipol University, School of Fine Arts, Design and Architecture. She has academic studies on technological innovations in construction products, nano technological materials and sustainability, timber building technology, ecology and project management.

Comparison of Adobe and Container Structures via LCA



Nihat Atmaca^{1,*}, Derya Bakbak², Adem Atmaca³

¹ Gaziantep University

² Hasan Kalyoncu University

¹atmaca@gantep.edu.tr

ABSTRACT

According to recent reports, 40% of the world's energy consumption and 33% of the related global greenhouse gas emissions are result of building sector. With the increasing environmental awareness, much attention has been given to the energy consumption and greenhouse gas emissions in building structure types and materials. The selection of material and structure is not only related with the strength and durability. The energy consumption and environmental effects should also be taken into consideration in selection of the material and structures. The objective of the present study is to make a comparison between adobe and container structure types by means of energy consumption and CO₂ emission via Life Cycle Assessment. For this purpose, Life Cycle Assessment methods are used to investigate and evaluate the environmental impacts of a building structure system over its entire lifespan. The gross areas and some technical properties of selected structures are similar to each other. Life Cycle Energy and Life Cycle CO₂ Assessment methods are two common methods that offer life-cycle energy and life-cycle CO₂ emission assessments, respectively. The life cycle models focused on building construction, operation and demolition phases. The prediction of lifespan is too difficult. On the other hand, the adobe and container structure types are generally used as temporary shelters. Thereof, the lifespans of the container and adobe structures have accepted as 25 years. The findings showed that, the embodied energy and CO₂ emission values of traditional adobe structures are found as nearly advantageous as the container structures. The embodied energy value of adobe structure is 18% higher than container structures, however CO₂ emission value is 45% lower than container structures. The traditional adobe structures should be considered as an alternative and effective solution for environmental and energy policies in a long term.

Key Words: Adobe, Container Life Cycle Energy Assessment CO₂ Assessment

Survey and Analysis of Various Domes in the Structure of Traditional Iranian Buildings



Mohsen Zamani Sabzi

Istanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey.
mohsenzamani.turk@yahoo.com

ABSTRACT

One of the most important structural parts in traditional Iranian buildings that has an impact on the formation of architecture as well as the landscape is the section of the coatings, in particular the domes. Traditional Iranian domes are among the most prominent examples of traditional building in Iran. It has been around for thousands of years, many of which have survived for many centuries. Dealing with dome practices, recognizing its types, examining structural performance, drawing styles, stylistics, executive methods and related issues It has always been a concern of Iranian architects. The purpose of this paper is to study and analyze the types of domes in traditional Iranian buildings for the sake of The general tore is the appearance and construction technique. After introducing the history of the construction of the dome in Iran, this paper examines its position in Iranian architecture and defines the terms of the word dome. Then, by describing the types of domes, the constituent parts and the technique It builds on the analysis and analysis of these thousands of years in the structure of traditional Iranian buildings. In this regard, it is also trying to use the resources of the library and using the historical descriptive method to find the results according to the subject.

Key Words: Dome, Islamic architecture, Iranian Buildings, Tradional Iranian domes

CV: Mohsen Zamani Sabzi

Istanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture,
Graduate student, mohsenzamani.turk@yahoo.com

The Role of Materials in Sustainable Architecture from an Environmental Point of View



Hadi Hedayati

Istanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus İstanbul/Turkey.
hedayati045@hotmail.com

ABSTRACT

In recent years, the increase in construction rate has led to the production of various forms of waste spread across the cities, contributing to environmental pollution. Modern buildings, especially in the cities, are constructed of new materials. The level of energy that is used for production of such materials is relatively high. To reduce the environmental risks associated with construction materials, we need to analyze the energy consumed throughout the entire life cycle of such materials, starting from the time they are extracted from the nature to the time they return to the nature. In this research, we have analyzed the environmental challenges that can possibly surface due to improper use of new/modern construction materials. Moreover, we have evaluated the advantages of using local construction materials from an environmental perspective and have proposed using local materials in construction projects as a safe, useful, and low cost solution. The processes for producing both local and modern construction materials, from extraction from nature to their return to nature, and their impact on environmental pollution have been studied and compared. Each stage in the life cycle of materials is described in this framework. By analysis and comparing local and new/modern materials, the benefits of local construction materials as a better choice are discussed. Some of such benefits are no damage to nature during the extraction process, lowest impact on air pollution, low consumption of energy during the production process, saving on transportation energy, reducing energy consumption during the operation, reducing costs, and most importantly, fast return to nature and no degradation to the environment. However, the use of local materials has its own requirements and conditions.

Keywords: Local materials, Sustainable architecture, Life cycle, Environment.

CV: Hadi Hedayati

Istanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture,
Graduate student, hedayati045@hotmail.com

Post-Disaster Planning and Implementation of Resilient Cities



Seyed Mohammadamin Shahriari

İstanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey.
seyedshahriari@stu.aydin.edu.tr

ABSTRACT

Throughout the history world has faced many natural and anthropogenic disasters. This project proposes a rebuilding method with "Resilience" in mind in the aftermath of disasters. In this paper, approaches to resilience and the concept of "resilient city" are reviewed and guidelines to achieve urban resilience are discussed. In addition, the role of design and planning in resilience has been examined. Moreover, physical changes that can reduce the number of casualties, damages to the city, while reducing the time to return to normal life have been reviewed. Examples of activities and projects aimed at increasing urban resilience are provided to clarify the concept of resilience. It is important for all countries to know their vulnerabilities before planning for resilience. A society cannot be considered resilient until all parts of it become resilient. As a result, all development projects should look at resilience concept and incorporate it in their implementations.

Key Words: Resilience, disaster, reconstruction, adaptation

CV: Seyed Mohammadamin Shahriari

İstanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture, Graduate student, seyedshahriari@stu.aydin.edu.tr

The Use of Traditional Houses in the Diyarbakır Suriçi (Walled City) Region in Tourism, as Boutique Hotels



Eray Karamehmetoğullari

İstanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey.
eraykmo@gmail.com

ABSTRACT

Within the scope of urban transformation, renovation of Diyarbakır Suriçi region, which enjoys historical and cultural values, which go back to 7500 BC, is aimed, for the rectification of damages it suffered in time due to natural events and people. Within the scope of the renovation efforts, it is planned to restore historical and cultural structures located in the region in a manner faithful to their original, and therefore, to create a center of commerce and tourism. The relevant urban transformation project is fairly important, both in order for these structures to be handed down to future generations, and for the local community to obtain financial income. Within the scope of the present study, it has been aimed to perform the restoration and restitution efforts of traditional houses located in the Suriçi region, and to use these houses in tourism, in the concept of boutique hotels.

Keywords: Diyarbakır, Tourism, Re-functioning, Boutique hotel

CV: Eray Karamehmetoğullari

İstanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture,
Graduate student, eraykmo@gmail.com

Examination of the Change of Traditional Houses in Diyarbakir Suriçi Region According to Spatial Relationship



Neşe Denli Özel

İstanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey.

ndenli_@hotmail.com

ABSTRACT

Diyarbakir Suriçi region is the earliest settlement of Anatolia where many civilizations and cultures coexist. The space setup of the traditional houses in Diyarbakır Suriçi region reflect the culture, traditions and customs of local inhabitants. Family structure in Diyarbakır traditional houses are multi-room buildings that combine mother, father, children, brides and grooms under the same roof which form big family concept. Spaces have been created by also considering climate conditions. Life takes place between courtyard and iwan. Social, cultural, economic and technological changes in our society have taken place with the changing conditions of life. The patriarchal family structure has been transferred to the core family structure consisting of mother, father and children. Changes have occurred in space relation of the traditional houses. The buildings that reflect the social, cultural and economic situation of the period they have been built have begun to lose their original state with the changes made by the new users. Within the scope of this study, suggestion has been made for the space setup of the traditional Diyarbakır houses, whose numbers are gradually decreasing day by day, without losing their cultural values.

Keywords: Suriçi Region, Traditional houses, Space, Family, Culture

CV: Neşe Denli Özel

İstanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture,
Graduate student, ndenli_@hotmail.com

Palestine as Logistic Zone to Facilitate Trade at the New Silk Road by Using the New Technology of Prefabrication



İbrahim Alnatsha

İstanbul, Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey.
ibrahim_architect@hotmail.com

ABSTRACT

This paper deals with the new vision of developing palestine as lojestic zone in the middil east, to facilitate the internasnal trad at the new silk road by using the new technology of prfabrecation to face the increasing of population in the zone and rebuilt gaza with more efficiently, consume less energy.

Keywords: Middil east, Culturei Silk road, Logistic, New technology

CV: İbrahim Alnatsha

İstanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture,
Graduate student, ibrahim_architect@hotmail.com

The Protection of the Cultural Values of Sur Town; Unesco's Studies and Recommendations



Elif Dilaver

İstanbul Aydın University, Engineering and Architecture Faculty
Department of Architecture, Florya Campus, İstanbul/Turkey.
lifdilaver@gmail.com

ABSTRACT

Turkey has hosted many cultures, languages and races for thousands of years and is an important country in the cultural sense. For this reason, it plays an important role in preserving the historical cultural heritage. Protecting our cultural values is not just about passing on to future generations, but also, and most importantly, nurturing and nurturing new ideas for the future. "A nation that does not know it's own history is condemned to disappear" (Mustafa Kemal Atatürk). It is best explained in this saying why we should protect this heritage as it is in the same way.

Due to a number of events in the world, many of our values are in danger of extinction. One of those places that has been home to many cultures is Sur district in Diyarbakir, Turkey. Sur District attracts the interest of domestic and foreign tourists with its mosques, inns (ancient road houses), bridges and bazaars. It is also recognized as part of UNESCO's internationally recognized cultural heritage. However, because of today's terrorist attacks, the region has fallen into ruin and people have begun to abandon their place of residence. It is in the work agenda that enables the reconstruction of the buildings under the name of urban transformation and restoration of the buildings which have not been completely ruined so that the city can be reinstated. Reports have been prepared and studies have been initiated in order to return to the former settlement of Sur District through the approval of UNESCO and return to where people live.

Furthermore, the current situation will continue with information on UNESCO's work and recommendations on the reasons for migration of people living in that geography and on the protection of this cultural heritage.

Key Words: Protection, Urban Protection, Cultural Heritage, UNESCO, Forced Migration

CV: Elif Dilaver

İstanbul Aydın University, Engineering and Architecture Faculty, Department of Architecture,
Graduate student, lifdilaver@gmail.com

The Mudbrick Structures in Van and Their Importance



Helin Işın

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
helin.isin@hku.edu.tr

ABSTRACT

The first building material that has been produced since long ago and can be given the desired shape is mud-brick. In order to meet the need for accommodation, every person in the field and in every way used to the soil, in the most primitive way, mixed the soil with water and straw, poured the wooden molds and dried them in the sun and named the rectangular forms as "mudbrick". Adobe usage in Turkey is based on ancient times which is crossed from nomadic life to settled life. Van is one of the examples of the adobe structures that are found in many parts of Anatolia. In this area, it was used for construction of walls, churches and mosques, and housing construction as construction materials.

The use of mud bricks on the buildings has many advantages. Using this abundantly available material gives us the most efficient energy saving, creating the most suitable living conditions in the building, making the best use of solar energy with the easiest methods and providing the minimum cost for living space design.

The most important properties to be examined in adobe material to be used in the construction are pressure resistance, resistance to atmospheric effects and dissolution in water. These properties make it possible to survive for long periods without any damage. At present, the lack of adequate maintenance and Van earthquake structures damaged to the structures. At the same time, the dismissal of mud brick houses in the post-earthquake reconstruction plan harmed architectural value.

In the scope of the research, the usage of the mudbrick in the construction area in Van, the samples of the mudbrick structures which have reached to the day-to-day and continue to be used today are examined, and the reasons for the importance and the deterioration of these structures are put forward.

Key Words: Mud brick, Van, Masonry work construction, Vernacular architecture, Adobe

CV: Helin Işın

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
Department of Architecture, Graduate student, helin.isin@hku.edu.tr

Structural Property of Adobe House in Kahramanmaras



Oğuz Kağan Bilici

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
bilicioguzkagan@gmail.com

ABSTRACT

Adobe is a natural and sustainable building material. Adobe mixing hay and other additives into the clay soil, it is then cast into a building material obtained by kneading the mold with water, and air dried. Adobe has more superiority such as healthy and low cost. It can be easily produced using simple tools with local facilities, non using energy for adobe building.

In this article, it was aimed at describing the general characteristics of the çivil architects made at mudbrick at Kahramanmaras location center. The choice of stone, wood and mud as material for this area is the easy availability of the ground. Houses constitute a large proportion of the structures in this area. We have examined the design and usage of the houses in detail. The Turkish house plan typologies of the houses built have been examined. The details of the facade, the details of the building elements used, were examined to evaluate the relationship with the adobe. Article Kahramanmaraş area introduces civil architectural residences and includes reviews evaluations.

Key Words: Adobe, Kahramanmaras, Design , Building , Structural

CV: Oğuz Kağan Bilici

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
Department of Architecture, Graduate student

Traditional Harran Houses



Muhammet Mamir

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
muhammetmamir@gmail.com

ABSTRACT

The most attractive part of Harran, they made house with overlay techniqua and with shape cone and resumed. The history cone shape houses A.D 6.thoused years.

There are two repions where domed houses in Anatolia intensively decorted. The first region is between Urfa-Birecik part, second region is between Urfa-Akçakale part unlike the houses covered with on mud-brick dome. They were also used bricks in the domes of Harran houses.

Harran houses are covered with bricks dome for two reasons. The first are because of Harran droothi there is no wood material second one, is Harran abunday with brick material. The height of thr houses is up to 5 meters and 30-40 brick row.

Dome and walls connected irregularly by clay plaster, it is plastered from inside and out again with this mortar.

The domed houses were used as if they were inside one onether. The center of the dome was was left open. This oppennes is both for thr small of inside. Harran houses are plastered with herring both side. There fore in the summers are coolin the winter are cool.

Key Words: Harran, Şanlıurfa, Turkey, Traditional houses, Design, Domed, Houses, Adobe, Structural, Architectural

CV: Muhammet Mamir

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
Department of Architecture, Graduate student, muhammetmamir@gmail.com

Gaziantep Province Oğuzeli District Barak Plain Traditional Adobe Houses



Vijdan Aktaş

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
vijdanaktas@gmail.com

ABSTRACT

Gaziantep is a city that has developed continuously in the historical process and has cradled many great civilizations. Many construction activities under the effect of commercial mobility due to geographical location in the city as it happens, housing production and demand are increasing continuously due to migration. In the context, it is seen that the traditional Gaziantep Houses the merit of the examination emerges.

The general characteristics of the city of Gaziantep were examined in terms of geographical, historical, socio-demographic, and after the concept of housing was conceptually examined, the advantages and advantages of the daily usage and exploitation of the adobe houses of Oğuzeli District of Oğuzeli District in Gaziantep were investigated and the characteristics of the kebab constructions were examined. Building production is a process that works within a unique system. Different techniques have been studied within the building production process. It was observed that these structures were durable and durable by the construction of the mudbrick.

Key Words: Gaziantep, Barak culture, Traditional Architecture, Adobe Houses

CV: Vijdan Aktaş

Hasan Kalyoncu University, Faculty of Fine Arts, Gaziantep
Department of Architecture, Graduate student, vijdanaktas@gmail.com